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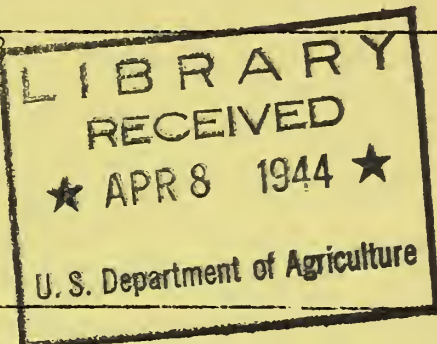


S O I L C O N S E R V A T I O N L I T E R A T U R E  
S E L E C T E D C U R R E N T R E F E R E N C E S

V.2

September/October, 1938

No.5



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"It is in the periodical that one looks to find the details of new discoveries and innovations, fresh from the discoverer's mind and in his own words. Here too are found those things of new fields, suggestions of unexplored paths, that are the inspiration of further investigations."

Dr. Harrison W. Craver

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*Mildred Benton*  
Librarian

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PERIODICAL ARTICLESAerial Mapping

Lowdermilk, W.C. Use of aerial mapping in soil conservation.  
Civ. Engin. 8(9):605-607, illus. September 1938.

This article, after explaining the conservation program in sufficient detail to clarify its map requirements, describes briefly the mapping methods and standards now in use, and lists a number of the improvements that have been made in aerial mapping technique in the course of this work.

The article is abridged from a paper on the program of the Surveying and Mapping division, American Society of Civil Engineers, 1938 annual convention.

Beavers

Beavers used on streams for reclamation work. Engin. News-Rec. 121(5):152.  
Aug. 4, 1938.

"Continuing a program initiated about two years ago, the division of grazing of the Department of the Interior, is moving about a hundred beavers per month, this season, to small streams on federal grazing districts in Idaho. The dams the beavers build are intended to check soil erosion and store water supplies... The cost of placing each beaver averages \$5 and the Division estimates the value of the work done by each animal at about \$300."

Carr, W.H. Beaver, builder of empire. America's foremost landscape authority, after three centuries of heartless slaughter, is again to have his place in the sun, for the rehabilitation of our woodlands.  
Natural Hist. 42(2):100-106, illus. September 1938.

Capillarity

Galletti, A.C. Contributo allo studio della capillarità delle terre.  
Ann. R. Staz. Sper. Agr. Modena n. ser. 5:379-391. 1936.

"Bibliografia," p. 391.

Contribution to the study of the capillarity of the soil.

Galletti, A.C. Metodo di determinazione della tensione superficiale delle terre. Variazione della ascensione capillare provocata dai fertilizzanti chimici nel terreno agrario (Method of determining the superficial tension of lands. Variation of the capillary ascension provoked by chemical fertilization in agrarian land)  
Ann. Tecnica Agraria 10(4-6):248-256. Nov. 1, 1937.

The author discusses the merit of a new method of studying capillary ascension as affected by chemical fertilization. A more detailed study is promised.

Wilson, B.D. and Richards, S.J. Capillary conductivity of peat soils at different capillary tension. Jour. Amer. Soc. Agron. 30(7):583-588. July 1938.

### Crop Yield Measurement

Reynolds, F.S. and Coldwell, A.E. Measuring crop yields on a community scale. Jour. Amer. Soc. Agron. 30(8):635-643. August 1938.

Describes a dependable, quick and practicable method of measuring grain sorghum yields devised at the Soil Conservation Service demonstration project near Dalhart, Texas primarily to evaluate the terracing and contouring practices being advocated by the Service.

### Evaporation

Daigo, Y. On the evaporating power of atmosphere close to the ground in the growing space of crops. Jour. Met. Soc. Japan, series 2, 16(5):198-208. May 1938.

In Japanese, English summary.

Lloyd, David. Evaporation over catchment areas. Quart. Jour. Royal Met. Soc. 64(276):423-444, illus. July 1938.

Summary: "Some of the most authentic data of the general rainfall over British drainage areas and the run-off in annual periods are marshalled. The difference between these observed quantities of water - i.e., the losses in annual periods from all causes - is fundamentally accepted from other research to be principally the effect of evaporation including evapo-transpiration.

"The paper examines the variation in the annual total loss over eight drainage areas by a statistical method. It is postulated that loss is a joint function of meteorological elements and the geological formation penetrated by any rain water; further, that in the present stage the joint functional causation can be simplified to one of separate functions. Thus, it is assumed that the variations in loss can be associated with the rainfall providing the opportunity for evaporation, with the temperature, with the sunshine, and (as following the primary loss in the zone of aeration, influent seepage may provide a flow in the zone of saturation which later may provide a deferred opportunity for evaporation from the capillary fringe and effluent seepage from ground water) with the geological formation. Regressions of loss on the available postulated controls have been inferred. By inductive reasoning, an equation is found approximately representing the observations over the eight areas, by which the annual loss expected on account of various influences can be estimated."

Millar, F.G. Evaporation from free water surfaces. Canada Dept. Transport, Air Serv. Branch. Canad. Met. Mem. 1(2):43-65. 1937.

Due to the serious effect on shipping of the low water levels of the Great Lakes intensive investigations are being carried out to determine the best means by which these levels can be controlled. One of the important factors taken into account is that of evaporation. From the results of controlled experiments and theoretical considerations, an evaporation formula has been developed. This memoir deals with the experimental work and the theoretical investigation connected therewith.

"Some wind tunnel experiments on evaporation are described, and these and other recent experiments are first discussed from an empirical point of view. Then the theory of turbulent mass exchange is used to develop equations for evaporation from both finite and infinite free water surfaces. The formulae obtained are in agreement with the principle of dynamic similarity, are claimed to be of more general application than the usual power laws, and are verified by the observational material for a wide range in the size of surface."

Yamamoto, G. and Ogiwara, S. Some experiments on the evaporation of water from soils. Jour. Met. Soc. Japan, series 2, 16(3):97-109. March 1938.

In Japanese. English summary.

### Farm Management Research

Bonne, C.A. Farm management research and agricultural adjustment in the southwest. Southwestern Social Sci. Quart. 19(1):76-86. June 1938.

Describes the evolution of the research program in farm management in Texas, calling particular attention to those modifications which can be traced in part at least to the existence of the agricultural adjustment programs. The author also outlines a plan through which both research and extension programs in farm management could be greatly advanced and a sound basis for the administration of agricultural adjustment programs established.

### Fertilizers

Lewis, A.H. The effect of nitrogenous fertilizers on the calcium status of soil. Jour. Agr. Sci. 28(2):197-202. April 1938.

"References," p. 202.

"Most of the work published on the 'physiological reaction' of nitrogenous fertilizers has been based on the results of pot and laboratory experiments. Apart from information on the effects of ammonium sulphate and sodium nitrate there appears to be a dearth of results based on field experiments, particularly with the newer types of fertilizer materials.

"The aim of the experiment described in this paper was to study the effect of nine nitrogenous fertilizers on the rate of loss of exchangeable calcium from the soil and on crop yields."

### Floods and Flood Control

Daingerfield, L.H. Southern California rain and flood, February 27 to March 4, 1938. U.S. Mo. Weather Rev. 66(5):139. May 1938.

Davis, W.M. Sheetfloods and streamfloods. Bull. Geol. Soc. America 49(9):1337-1416, illus. Sept. 1, 1938.

"Works to which reference is made," pp. 1415-1416.

"Most of the observations and examples drawn upon are taken from the Mohave Desert of southeastern California and from southeastern Arizona, where uplifted fault blocks are a characteristic initial form of a cycle of desert erosion..."

"Repeated excursions[by the author into this region]has led to this comprehensive summary of the work of sheetfloods and stream-floods in arid physiographic cycles."

Diebold,C.H. Interrelationships between water tables,soil characteristics,silvics,reforestation,and flood control in south-central New York. Ecology 19(3):463-479,tables. July 1938.

"Literature cited,"pp.478-479.

"The material presented has been condensed from a thesis submitted for the degree of Doctor of Philosophy,Cornell University,June 1937, and from a paper presented at the 1936 winter meeting of the Ecological Society,at Atlantic City."

Munns,E.N. Land treatment and the control of floods. Soil Conserv. 4(2):49-51. August 1938.

How the Department of Agriculture is attempting to reorient and coordinate its various activities relating to flood control.

Ringland,A.C. Flood control work of the department. Soil Conserv. 4(1):18-19. July 1938.

Traces history of legislation and various attempts at flood control which culminated in the passage of the Omnibus Flood Control Act of June 22,1936.

Todd,O.J. The floods of "China's sorrow". Mil.Engin.30(173): 319-326,illus. Sept/Oct.1938.

Characteristics,old attempts at regulation,recent studies,technical aspects,irrigation and comprehensive plan required for the Yellow river in China.

### Forest Influences

Kittredge,Joseph,Jr. The magnitude and regional distribution of water losses influenced by vegetation. Jour.Forestry 36(8): 775-778,illus. August 1938.

"Literature cited,"p.778.

Map shows distribution of annual water losses in the United States in inches.

Table indicates annual water losses in different forest regions.

Kraebel,C.J.and Kellogg,L.F. The forest guardians of our watersheds. Jour.Forestry 36(9):858-860. September 1938.

Reviews research in forest-influences by the U.S.Forest Service during the last ten years which has contributed towards a clearer understanding of how the watershed forests act to stabilize stream-flow.

### Great Plains

Clements,F.E. Climatic cycles and human populations in the Great Plains. Sci.Mo.47(3):193-210,illus. September 1938.

Presented in a symposium on the "Scientific Aspects of the Control of Drifting Soils" Denver meeting of the American Association for the Advancement of Science.

A discussion of the problem of the Great Plains from the climatic, ecological and human angles.

Mattice, W.A. Precipitation in the Great Plains. U.S. Mo. Weather Rev. 66(5):117-126, illus. May 1938.

"Literature cited," p. 126.

An examination of data for a fifty year period, 1887-1936, including a study of the climatic aspects of various sections.

### Gully Control Structures

Roe, H.B. Some observations on the behavior of models of gully control structures. Agr. Engin. 19(8):359-362, 364, illus. August 1938.

Presented before the Soil and Water Conservation Division, American Society of Agricultural Engineers, Asilomar, Pacific Grove, Calif., June 30, 1938.

Paper based on laboratory studies, under controlled conditions, carried out in the early spring of 1935 as a result of the experience of the erosion control wing of the ECW in Minnesota with the failure of the gravity section, rubble masonry dams, with rectilinear weir crest, used for head control of gullies because of the undermining and breaking down of their basal aprons.

Conclusions and recommendations are given but it is indicated that further experimentation is needed for the proper solution "of this important and far-reaching problem."

Zeasman, O.R. Relation of soils to mechanical erosion control structures. Agr. Engin. 19(7):317-318, 324, illus. July 1938.

Presented before the Soil and Water Conservation Division at the fall meeting of the American Society of Agricultural Engineers at Chicago, Ill. Dec. 2, 1938.

The paper appears in condensed form, the part omitted dealing largely with the geology of highly erodible soils.

Discussion concerns properly designed and well-built structures for the control of outlet gullies in Wisconsin, that is gullies that carry runoff from watersheds of 15 to 20 acres or larger and have a vertical overfall of at least several feet at the lip.

### Highway Erosion Control

Schnitzius, H.J. Sodding and seeding Indiana roads. Where the control of erosion as well as beautification of the roadside is achieved by proper landscape and construction practice. Earth Mover and Road Builder 25(7):19-23, illus. July 1938.

### Hydraulics

Chang, Y.L. Laboratory investigation of flume traction and transportation. Amer. Soc. Civ. Engin. Proc. 63(9):1701-1739. November 1937.

Abstract of a thesis entitled "Hydraulics of Flume Traction and Transportation."

"The subject is presented under three main headings: Part I is concerned principally with the tractive force required to cause initial movement of debris; the laboratory investigation by the writer is described in detail, and equation for critical tractive force is presented, and the results obtained in other investigations are tabulated and shown to conform generally to the same equation. Part II

deals with the laws of transportation by traction, and Part III, with the laws of transportation by suspension."

Authoritative literature on the subject is also reviewed.

Chatley, Herbert. River flow problems. Engin.[London]146(3783): 61-62, illus. Jly.15, 1938; 146(3786):165-166. Aug.5, 1938.

Notes based on the writer's experience with the Whangpoo and Yangtse rivers in China.

To be continued.

The hydraulic laboratory of the Federal Institute of Technology, Zurich. Engineering[London]146(3781):3-5, illus. Jly.1, 1938; 146(3786):149-151, illus. Aug.5, 1938.

Describes, lay-out, equipment and work done there.

Morton, William. A compact hydraulic laboratory. Civ.Engin.8(9): 611-612, illus. September 1938.

Describes equipment designed and developed by the writer under the sponsorship of the University of Washington.

### Interception

Wood, O.M. The interception in an oak-pine forest. Ecology 18(2): 251-254. April 1937.

"Literature cited," p.254.

Summary: "Four raingauges set up in a mixed forest of oak, pine, and gum were read following 145 storms. The total precipitation caught in these gauges varies from 84.9 to 91.3 per cent of that caught in a gauge in the open nearby. The average catch for the four gauges in the woods was 87.2 per cent of that caught in the open.

"A statistical analysis of the data showed that there was a significant difference between the readings made in the woods and those in the open. There was also a barely significant difference among the gauges in the woods, indicating that too few gauges had been used. Further computations showed that the number of gauges in the woods should have been increased to eighteen.

"The proportion of the rain reaching the ground in the woods increased with the intensity and duration of the storm. For the average storm of 0.75 inch recorded in the open, 91.3 per cent reached the ground in the woods.

"A smaller proportion of precipitation penetrated the crowns when it fell as snow than when it came down as rain.

"The proportion of precipitation which penetrated the crown of a chestnut oak did not increase after the leaves fell."

### Irrigation

Clyde, G.D. Modern irrigation. Utah Farmer 58(21 i.e.20)3, 13. Je.10, 1938; 59(1):5, 9. Je.28, 1938.

Article introduced with a discussion of how irrigation destroys soil productivity and continuing with suggestions as to how a farmer may develop a soil and water consciousness. With a better understanding of soil characteristics irrigated agriculture can be made and maintained a permanent resource rather than a destructive one.

## Land Utilization and Policy

Evans, Morris. Nonresident ownership - evil or scapegoat?

U.S.Bur.Agr.Econ.Land Policy Rev.1(2):15-20,illus. Jly/Aug.1938.

The author, who is in charge of land economics for the Bureau of Agricultural Economics in the southern Great Plains, "suggests that the nonresident owner has perhaps unrightfully been assigned the role of scapegoat" or designated at the cause of the agricultural "malaise".

He presents the results of a study undertaken to determine as precisely as possible what are the actual facts of the situation.

Glick, P.M. The soil and the law: II. Jour. Farm Econ. 20(3):616-640. August 1938.

The Federal land program from the viewpoint of the law.

Kohlmeyer, J.B. Land use and local government. Indiana counties find a way to greater efficiency. U.S.Bur.Agr.Econ.Land Policy Review 1(2):22-25. Jly/Aug.1938.

How a coordinated attack on two submarginal land areas in Brown and Martin counties in Indiana brought about more economical administration of local government, an increase in public forests and recreational lands, and a more thorough understanding of the problems of land-use adjustment and their relationship to local governmental problems.

Luther, T.F. The encouragement of private forestry in the state of New York. Jour. Forestry 36(8):767-771. August 1938.

The author is of the opinion that the solution of New York's land use problem lies in encouraging the practice of private forestry.

Strong, H.M. A land use record in the Blackland prairies of Texas. Ann. Assoc. Amer. Geogr. 28(2):128-136, illus. June 1938.

Based chiefly upon two field reconnaissance studies and source data in the regional office of the Soil Conservation Service at Ft. Worth, Texas.

Treats generally of the sequent occupance in the Black Waxey Prairies as a whole, before turning to specific cases of damage to soil in a small district northeast of Dallas incurred by the mode of land occupance prevalent during the past seventy-five years. The author concludes with an exposition of methods of improved soil management being introduced to check further deterioration.

## Leaching

MacIntire, W.H., Shaw, W.M. and Robinson, Brooks. The leaching action of rain water upon dolomite and limestone separates incorporated with quartz in outdoor lysimeters. Soil Sci. 46(1):9-19, illus. July 1938.  
"References," p.19.

## Orchard Erosion

Baker, C.E. Soil erosion, the enemy of the orchard. Amer. Fruit Grower 58(4):11, 24, 26, illus. April 1938.

Niswonger, H.R. Soil management of apple orchards in the Brushy Mountains of North Carolina. Amer. Fruit Grower 58(4):13, 26. April 1938.

Use of lespedeza in orchards set on sloping land susceptible to erosion when clean cultivation is practiced.

#### Range and Pasture Management

Flory, E.L. The relationship of vegetation and soil types in the semi-arid grasslands of the southwest and the effect of different grazing intensities. Utah Juniper 9:6-12, illus. 1938.

"Bibliography," p.12.

Spence, L.E. Range management for soil and water conservation. Utah Juniper 9:18-25, illus. 1938.

#### Root Studies

Bunger, M.T. and Thomson, H.J. Root development as a factor in the success or failure of windbreak trees in the southern high plains. Jour. Forestry 36(8):790-803, illus. August 1938.

"Literature cited," p.803.

Dittmer, H.J. The efficiency of monocotyledon roots in soil conservation. Iowa Univ. Studies Nat. Hist. 17(8):343-346. Jan. 15, 1938.

"Literature cited," p.346.

The survey described by the author, with its comparative data on the subterranean plant parts of all three, shows why winter rye is much more efficient than oats, and why Kentucky bluegrass is far superior to either of the others in retarding erosion.

Stoeckeler, J.H. and Kluender, W.A. The hydraulic method of excavating the root systems of plants. Ecology 19(3):355-369, illus. July 1938.

"In connection with studies of erosion, plant competition, soil type and moisture supply, considerable interest has recently been shown in the rooting habits of plants. The purpose of this article is to describe the hydraulic method of making root excavations and the equipment available for such work, with particular reference to field experience and practice."

#### Run-off

[Analysis of rainfall runoff data in Ralston creek drainage basin] Agr. Engin. 19(8):365. August 1938.

"An analysis is being attempted [by the Iowa Institute of Hydraulic Research] in a detail not previously accomplished, so far as is known, for any drainage area... In this drainage basin, comprising 3 sq. mi. of rolling topography, half in cultivated crops, precipitation records have been obtained with standard and recording rain gages and runoff records with a waterstage recorder, continuously since 1924. Ground-water fluctuations also have been observed. The study is designed to discover how the runoff, which is residual rather than a proportion of precipitation, is affected in time and amount by evaporation,

transpiration, and soil condition, as well as by rainfall amount and distribution. Determination of the 'opportunity' for evaporation and for transpiration, which is dependent upon the amount and distribution of soil moisture, is a major problem of the analysis. Air temperatures, crop growth, and such soil characteristics as permeability and capillarity are important influences to be considered."

Entire item quoted.

Gorrie, R.M. Soil losses from Indian forest grasslands and farms. Indian Forester 64(6):327-329. June 1938.

"Reliable run-off figures...available for the first time for Indian conditions."

### Soil Conservation

Campbell, J.P. Soil conservation districts in the United States. Herbage Rev. 6(2):72-73. June 1938.

Jenison, E.S. The 1937 soil conservation program in Denton county, Texas. Southwestern Soc. Sci. Quart. 18(4):302-309. March 1938.

"The study was undertaken with the belief that there might be secured from the work sheets of farmers cooperating in the soil conservation program and the tabulations made by officials administering that program much valuable material from which could be deduced certain pertinent facts in regard to the relative size of farm holdings operated by owners and tenants; the proportion of rented farms of which the landlords are banks, insurance companies or other corporations; the proportion of owners and tenants who, having once undertaken to cooperate with the agricultural conservation program, fail to carry the program through the season; and, most especially, the average financial reward for cooperation, the basis for its determination, and the relative amounts going to land owner and tenant..."

"Altogether, because of the smallness of the sample, the findings are more suggestive as to possible trends than significant in themselves. Similar studies over a large area might make possible a definite comparison of the merits of this program with those of other programs for farm relief."

Stewart, George. Revegetating man-made deserts. Jour. Forestry 36(9):853-855. September 1938.

U.S. Forest Service revegetation projects in various parts of the United States.

### Soil Conserving Plants

[Chadwick, L.C.] Compiling a new nursery list. Amer. Nurseryman 68(4):5-6. Aug. 15, 1938.

Lists ten ground covers suitable for covering steep banks and slopes for erosion control.

Gaines, E.F. Plant selection and breeding in relation to soil conservation. Northwest Science 12(3):58-62. August 1938.  
Presented at annual meeting of the Northwest Science Association, Spokane, Washington, August 1938.

Martin, J.N. Strophostyles (L.) Britton, its habits and probable value on eroded areas. Iowa State Col. Jour. Sci. 12(1):2533. October 1937.  
"This legume, an annual but propagating by seed and common throughout the Mississippi Valley and States east to the Atlantic is remarkable for its resistance to heat and drought. Though generally found on sandy soil, it thrives in clay soils of various types and on eroded banks and sides of gullies. It may be of value for cover and food for game birds and as a green manure, N replenisher and soil binder on eroded waste areas..." -- J.N. Martin. Biol. Abs. 12(3):4170. July 1938.

Myers, M.C., Bowden, R.A. and Hardisty, F.E. Stimulation of kudzu cuttings. Science 88(2277):167. Aug. 19, 1938.

Experiments undertaken in 1937 at the Horticultural Department of the University of Georgia in cooperation with the Soil Conservation Service in Athens indicate that "potassium permanganate is superior to any hormone product yet tested" for propagation from seeds and cuttings. "The stimulating results obtained... warrant further studies."

Planting pine for erosion control. Ala. Forest News 12(7):1,4. July 1938.

Although black locust has received much publicity as an excellent erosion control tree, more pine than locust is being used in the South.

Advantages of the pine in erosion control are cited.

#### Soil Erosion and Control. Foreign Countries.

Barbey, Aug. Où la chênaie est en régression. Jour. Forest. Suisse 88(8):165-167. August 1937.

"The Slavonian oak forests in the valley of the Save are dying out over considerable areas as a result of excessive spring floods and silting... The only remedy, but a slow one, is severe restriction of grazing on the denuded mountain slopes at the headwaters of the streams." - W.N. Sparhawk. Biol. Abs. 12(1):1686. May 1938.

Bates, E.M. Regrassing silted areas. Combating flood damage on the east coast (of New Zealand). New Zeal. Dept. Agr. Jour. 56(5):313-318, illus. May 20, 1938.

Frosini, P. Criteri generali per la regolarizzazione e utilizzazione di un corso d'acqua di pianura - a un caso particolare. Italy. Min. Lav. Pub. Consiglio Sup. Ann. Lav. Pub. 76(4):295-315. April 1938.

In Italian.

Principles of regulation of rivers and valley streams with special reference to case of the Tiber river in Italy.

Gorrie, R.M. The problem of soil erosion in the British Empire with special reference to India. Jour. Roy. Soc. Arts 86(4471):902-926. Jly. 29, 1938.

First reviews the processes of soil erosion in the light of recently accumulated experience in actual run-off and erosion loss measurements, and their effect upon stream-flow. Then discusses the various known control methods which have been or can be attempted.

Gorrie, R.M. Stone bunds in erosion control. Indian Forester 64(3):149-150, illus. March 1938.

A brief study of early attempts at erosion-control engineering in the Punjab, with pointers as to reasons for failure of some of the construction.

Hall, T.D. How veld management, burning and erosion affect feed conservation. Replies of 72 farmers to questions of paramount importance to the whole nation. Methods in use from the Cape to Rhodesia. Farmer's Weekly 55:174-177, illus. Mar. 30, 1938.

Haynes, A.R. Land drainage: an account of river improvement works and works of coast protection in the river Ancholme and Winterton Beck catchment area. Jour. Min. Agr. [Gt. Brit.] 45(4):338-343, illus. July 1938.

Use of brushwood mattresses in river bank erosion control in England.

Jones, Brynmor. Desiccation and the west African colonies. Geogr. Jour. 91(5):401-423, illus. May 1938.

The problem of desiccation was recently investigated by an Anglo-French Forestry Commission, to which the writer was attached, and which toured northern Nigeria and the French Niger Colony from December 1936 to February 1937. An attempt is made in this paper to review the question of desiccation of West Africa in the light of the most recent evidence, and to examine the problem particularly as it applies to Nigeria.

The outlook for the future, as indicated by the writer, is not so gloomy as is forecast by Professor E.F. Stebbing in his writings on the threat of the Sahara.

A few of the points emphasized are the following: "The silting up of streams and river capture and reducing the amount of surface water carried into the regions fringing the Sahara. This is a consequence of the Configuration of the country and nothing man can do will prevent it. The process may be delayed, however, and to some extent controlled, by river conservancy directed towards the protection of the headwaters and to flood control. Desiccation caused in this way is proceeding very slowly and does not constitute an immediate threat...

"A displacement of sand on some bare farmlands need not cause anxiety...

"Erosion is taking place around streams and in hilly areas. The protection of the forest at danger points would do much to retard the process, and around headwaters especially it is advisable that this action should be taken...

"The destruction of trees by herdsmen and their stock is not as important a factor as is commonly supposed, but it should be

prohibited on fallow land which has been exhausted by farming. Bush burning is not causing serious damage in the more arid regions since the grass is too thin and the bush too open to support really destructive fires..."

[Lester-Smith, W.C.] Note on soil conservation. Tea Quart. 11(1): 41-43. April 1938.

Recommends Bryophyllum pinnatum and Sansevieria guineensis for slope protection in Ceylon.

Lester-Smith, W.C. Soil conserving contour works. Trop. Agr. [Ceylon] 90(6):361-367. June 1938.

Text of a lecture delivered before the Ratnapura District Agricultural Committee on May 5, 1938.

In Ceylon the most effective type of soil conserving and run-off collecting contour work is considered to be the contour lock-and-spill (or as it is sometimes termed, lock-and-block) drain with a low bund, planted with some permanent cover crop, on the upper side of the drain.

Richardson, E.G. Fundamental aspects of erosion. Nature 142(3588): 236-238, illus. Aug. 6, 1938.

Contends that in order to make progress in combating the erosion evil, an attempt must be made to reduce the problem to its simplest proportions. The writer has carried out independent laboratory and field experiments in Great Britain and in this article he describes the nature of the studies under conditions which reduce the variable quantities to a minimum.

Sobolev, S.S. Study of gully erosion on the territory of the European part of the USSR. Pedology 1938, no. 2, pages 231-247. Article in Russian. English summary.

Tubbs, F.R. Waste material from ravines. Tea Quart. (Ceylon) 10(3):175-177. October 1937.

A plan worked out in Ceylon for incorporating organic matter in tea soils is as follows: Various leguminous bush green manures are being grown in suitable ravines, the loppings being forked in on adjacent eroded knolls or areas of poor soils. Where such crops have not flourished sunflower (Tithonia diversifolia) has been used with success. In this way, not only is valuable organic matter added to the soil, but mineral salts are also trapped and carried into the tea area.

There is still a shortage of suitable plants for the purpose. A plant suggested for furthering the policy and which will grow in damp soil is Bryophyllum pinnatum (Sinhalese: Akkapana, or Ratagowa).

#### Soil Erosion and Control. United States.

Howard, I.M. Protecting citizens of tomorrow. Farm and Ranch. 57(14):4, 13, illus. Jly. 15, 1938.

Erosion control work on Oklahoma school land.

"In Oklahoma, there are 1,300,000 acres of school land - land set aside for the support of public education. Under the supervision

of the Commissioners of the Land Office, this land is leased to be farmed. Growing the cover crops and checking the growth of gullies protects soil from erosion and insures higher farm incomes. This results in more money for schools."

The law authorizing the payment of erosion control work being done on school land farms was passed by the sixteenth Oklahoma legislature.

Sverdrup, H.U. Notes on erosion by drifting snow and transport of solid material by sea ice. Amer. Jour. Sci. 35(209):370-373, illus. May 1938.

### Soil Microbiology

Vandecaveye, S.C. and Katznelson, H. Microbial activities in soil: IV. Microflora of different zonal soil types developed under similar climatic conditions. Soil Sci. 46(1):57-74. July 1938.

"References," pp. 73-74.

Vandecaveye, S.C. and Katznelson, H. Microbial activities in soil: V. Microbial activity and organic matter transformation in Palouse and Helmer soils. Soil Sci. 46(2):139-167, illus. August 1938.

"References," pp. 165-167.

"The particular activity of the microflora and the nature of organic matter transformation resulting from additions of the surface organic residue of one soil to the other, as well as to its homologous soil, and the possible influence these factors may have in differentiating inherent properties of soils developed from the same parent material under similar climatic conditions form the principal objects of the work presented in the present paper...

"Differences in composition and decomposition of organic residues result in a relatively efficient humus formation, a comparatively large actinomyces population, a dark color, and a granulated structure in the Palouse soil, in contrast with a less efficient humus formation, a more acid reaction, a comparatively large fungus population, a lighter color, and comparatively little granulation in the Helmer soil.

"The role of the microflora in these processes is very markedly influenced, one might say controlled, by the nature of the organic residues."

### Soil Moisture

Bouyoucos, G.J. A field outfit for determining the moisture content of soils. Soil Sci. 46(2):107-111, illus. August 1938.

Summary: "An outfit has been devised, which can easily be carried into the field, for the accurate and rapid determination of the moisture content of soils by means of burning alcohol."

## Soil Properties

Billings, W.D. The structure and development of old field short-leaf pine stands and certain associated physical properties of the soil. Ecological Monographs 8(3):437-499, illus. July 1938.  
"Literature cited," pp. 496-499.

The present study is an attempt to apply quantitative phytosociological methods of vegetational analysis to the communities in a successional series of shortleaf pine stands in the Duke Forest, Durham County, North Carolina and to correlate statistically these results with exact measurements of habitat factors, namely, certain physical properties of the soil.

## Soil Structure

Sekera, F. Statik und dynamik des bodenwassers (Static and dynamics of soil moisture) Bodenk. Pflernähr. 6(5/6):288-312. 1938.  
Article in German.

"Structure-analysis data obtained by removing moisture from soil at various suction pressures were used to determine active and passive forms of soil moisture. The critical moisture content lies within the boundary of these two forms of soil moisture."  
Soils and Fert. 1(3):101. 1938.

Sekera, F. Die strukturanalyse des bodens (The structure analysis of soil) Bodenk. Pflernähr. 6(5/6):259-288. 1938.  
Article in German.

"Describes a method of determining pore space based on the removal of water from soil by suction in three categories, corresponding to coarse, medium and fine capillary pore space, according to the suction applied. Soil and Fert. 1(3):101. 1938.

Sideri, D.I. On the formation of structure in soil: IV. The structure of mixed clay-sand and clay-humus formations. Soil Sci. 46(2): 129-137, illus. August 1938.  
"References," pp. 135-136.

Summary: "The nature of mixed clay-sand and clay-humus formations is explained, and structures are described which show that clay is the structure-forming component of soil.

"Admixtures of iron and aluminum oxides to clay hinder the aggregation of clay particles. The presence of oxides in large amounts destroys the orienting properties of clay in respect to humus. In this case, more coagulation occurs with a confused distribution of particles.

"The elimination of iron and aluminum oxides from the surface of clay particles increases the ability of these particles to aggregate. A particular 'rod' structure arises, the 'rods' being optically homogenous and possessing positive double refraction."

## Soil Water

Childs, E.C. The movement of water in heavy soils after irrigation. Soil Sci. 46(2):95-105. August 1938.  
"References," p. 105.

Summary: "An application of the theory of diffusion of water in heavy soils has been made to observations taken under irrigation

conditions. It is shown that diffusion can account for the slow movements after irrigation and can be important in soil amelioration, but that during flooding such movements are masked by the more rapid gravitational movement."

Gustafsson, Y. Om teorierna för vattnets bindning och rörelse i jord med särskild hänsyn till nyare forskningsresultat (Theories of the absorption and movement of water in soil with special reference to new experimental results) Nord. Jordbrugsforsk 7-8:225-239. 1937.

Article in Danish.

"A brief summary of the colloid-chemical basis of soil-water relationships illustrated by the works of Schofield, Russell, Mitscherlich, etc."--Soils and Fert. 1(3):102. 1938.

### Tree Planting Methods

Baldwin, H. I. Planting experiments in the northeast. Jour. Forestry 36(8):558-760. August 1938.

"A survey of numerous planting manuals, leaflets, and reports issued by state, federal, and private agencies during the past 30 years suggests that there has been little change in technique or methods of planting recommended to the private owner. This paper summarizes the experiments designed to test the effectiveness of different methods as measured by survival and growth of the trees."

### Water Facilities Act

Myer, D. S. and Gray, L. C. Water facilities and land use in drier areas. Soil Conserv. 4(2):46-48. August 1938.

Planning for carrying out the provisions of the Pope-Jones water facilities act.

Myer, D. S. and Gray, L. C. Water facilities for the arid and semi-arid west. Soil Conserv. 4(1):16-17. July 1933.

Explains significance of the Pope-Jones water facilities act (Public no. 399, 75th Congress)

### Wind Erosion

Hopfen, J. Wind erosion and means of control. Internatl. Inst. Agr. Mo. Bull. Agr. Science and Practice 29(6):219-223. June 1938.

Review of wind erosion control practices in the United States, Australia and the U.S.S.R.

Kimmel, R. I. The future of the dust bowl. Amer. Wildlife 27(3):51, 62. May/June 1938.

From an American Wildlife Institute radio broadcast.

King, Arthur. Wind erosion and dust storms in Oregon. Commonwealth Rev. 20(1):400-405. March 1938.

Description of storms and their damage; suggested control through use of crop residues as a soil protection; and passage of a law by the 1937 Oregon Legislature which makes it possible for the people

of Morrow County to force careless farmers within the area to follow farming methods that will effectively control wind erosion.

Lusk, R.D. The life and death of 470 acres. Sat. Evening Post 211(7):5-6, 30-31, 34, illus. Aug. 13, 1938.

A planned campaign for "bringing back" the Karnstrum farm in Beadle County, South Dakota, which was ruined by dust storms, by means of strip and contour farming to prevent soil blowing.

A Soil Conservation Service demonstration project has been established in this area near Woolsey, South Dakota.

Whitfield, C.J. Sand dunes of recent origin in the southern great plains. Jour. Agr. Research 56(12):907-917, illus. Jan. 15, 1938.

"References," p. 917.

Relates methods of stabilizing and utilizing sand dunes near Dalhart, Texas of the type developed as a result of the destruction of surface cover. Studies dealing with the origin and character of this type of dune were begun in January 1936 by the Soil Conservation Service.

Of the four methods suggested for decreasing the height of dunes, namely (1) wind intensifiers, (2) drag-pole, (3) one-way disk, and (4) tractor and blade, the use of the drag pole is indicated to be the most efficient as well as the most economical.

"The study indicates that the better land is capable of producing good crops of grain sorghums if farmed in such a way as to prevent soil drifts and also that these dune sites can be returned to grass."

#### BOOK AND PAMPHLET NOTES AND ABSTRACTS

Bibliographie géographique internationale 1936. 620pp. Paris, 1937. 241.6 B47 46th 1936.

The 46th annual bibliography published with the collaboration of the American Geographical Society, du Comitato Geografico Nazionale Italiana, de la Geographische Gesellschaft in Wien, de la Royal Geographical Society (London) de la Société Belge d'Études Géographiques, de la Société Royale de Géographie d'Égypte.

Bibliography of soil science, fertilizers and general agronomy 1934-1937. 540pp. Harpenden, England, Imperial bureau of soil science, 1938. 241Im7Bs

"The bibliography is compiled from the references included in the monthly lists nos. 42-77 of 'Publications relating to soils and fertilizers' and covers the period 1934-1937. A few references dated between 1931 and 1933, which were omitted from the first volume, are also included."

Bingham, M.T. A study of vegetational invasion and succession on a denuded area of the Cranbrook estates, Bloomfield Hills, Michigan. Mich. Acad. Sci. Arts and Letters. Papers 23:101-108, illus. 1937. 500 M582 v. 23

"Regardless of slight difference in the number of species present in 1934 and 1935 the same eight plant families lead the list of

invaders. The Compositae, the leading family, maintained each year an identical margin over the Gramineae. Seeds of most dominants are wind-blown. Others depend on animals.

"Notwithstanding the general recognition of 95 per cent of all species listed as particularly noxious weeds, they should be seriously regarded as active and persistent agents in erosion control."

Buck, J.L. Land utilization in China; a study of 16,786 farms in 168 localities, and 38,256 farm families in twenty-two provinces in China, 1929-1933. 3 v. [Shanghai, China, Printed by the North-China daily news, 1937] 282 B85L

Agents in the United States, the University of Chicago press, Chicago, Illinois.

This work contains the results of a comprehensive survey undertaken by the Department of Agricultural Economics of the University of Nanking, and financed largely by the Institute of Pacific Relations, for the purpose of obtaining basic facts regarding land utilization, economic factors affecting farming and rural standards of living in China.

V.1 is devoted to an analysis of the survey material and presents the conclusions of the study.

V.2 is an atlas presenting geographically the data obtained through the survey.

V.3 is a tabulation of the data obtained from the field survey.

Of special interest to soil conservationists is Chapter III of v.1, entitled "Man's Use of the Land", also the section on "modification of land by man" in Chapter II.

Congres international de sylviculture, Budapest, 1936. Actes. 3v. Budapest 1936. 99.9 C76912A

Partial contents: v.2. Exposé sur la politique forestière suivie en Suisse dans la question des reboisements (The Swiss forest policy with reference to reafforestation) pp.278-286. v.3. Il consolidamento ed il rimboschimento del litorale occidentale dell' alto Adriatico (Fixation and afforestation of the West coast of the upper Adriatic sea) pp.133-148; Die wildbachverbauung in Osterreich (Torrent training in Austria) pp.321-329; Vizmosások megkötésénél használatos eszközök és munkék (Means of reducing slope in stabilizing ravines) pp.330-345; Proposta per l'impianto di osservatori sperimentali per lo studio dell'influenza del rimboschimento sullo scorrimento di superficie delle acque meteoriche (Methods for observing influence of afforestation on surface runoff) pp.352-358; L'importanza dei piani regolatori dei bacini idrografici e criteri generali per la loro compilazione (Importance of regulating mountain gullies) pp.359-369; Les forêts, l'aménagement des forêts, le régime des eaux et l'activité des torrents dans les montagnes de la République Tchecoslovaque (Forest management and torrent training in mountains of Czechoslovakia) pp.370-377; Les torrents à clapets et leur extinction (On torrent training) pp.378-388.

Grasovsky, A. A world tour for the study of soil erosion control methods. Oxford Univ. Imp. Forestry Inst. Inst. Paper 14. 77pp., illus., mimeogr. Oxford, 1938. 99.9 Ox 23 no.14.

The author describes particular points that appeared to him characteristic of, or peculiar to, the various countries and regions

visited. Countries included are Nigeria, The Sahara, Algeria, Morocco, United States, Japan, Java, Malaya, Ceylon, India.

Harrison, Ernest. Soil erosion. 22pp. [London and Beccles, William Clowes and sons, limited] 1937. 56.7 H242

"This paper is an attempt to give a comprehensive description of the problems of soil erosion, their effect on the individual and an assessment in regard to [Tanganyika] Territory as a whole; and the measures taken to counter the ill-effects of careless use of land."

Appendix I. Native authority anti-erosion rules for the Pare district, pp. 19-20.

Appendix IV. Conservation of water and prevention of soil-erosion rules enacted by the Chagga council (Moshi district) under section 15 of the native authority ordinance, pp. 21-22.

Horton, R.E. Preliminary outline for a comprehensive research on runoff phenomena. 44 numb. l., illus., mimeogr. Voorheesville, N.Y., [1937?] 290 H78P

"References," 1.43-44.

International institute of agriculture. Enquête internationale sur la correction des torrents et sur la restauration des montagnes en Europe (International investigation of torrent control and the restoration of mountains in Europe) 209pp., illus. Rome, 1937. 290 In85

"Literature," pp. 197-209.

In French.

Gives information received from Germany, Austria, Belgium, Bulgaria, Great Britain, Finland, France, Italy, Poland, Switzerland and Czechoslovakia in response to questionnaires sent out by the International Institute of Agriculture covering the following points relative to torrent control: importance of the problem, laws, damage, forests and pastures nearby the torrents, execution of control methods, and literature.

Lowdermilk, W.C. Ethics of soil conservation. Christian Rural Fellowship Bull. no. 21, 5pp. April 1938.

Condensed version in Conservation 4(3):16-17. May-June 1938.

Morton, J.N. Wildlife in the farm program. Simple methods by which farmers and sportsmen can improve wildlife habitats on agricultural lands. Penn. Game Comm. Bull. 16. 40pp., illus. Harrisburg, 1938. 412.9 P38B no. 16.

Parkins, A.E. The south, its economic-geographic development.

528pp., illus. New York, John Wiley & sons, inc., 1938. 278.002 P22

Punjab irrigation research institute. Report for the year ending April 1937. 228pp., illus. Lahore, Printed by the superintendent, Government printing, Punjab, 1937. 55.9 P96R 1936-37.

The following statements are quoted from the Introduction which draws attention to the main activities of each section of the Institute: "The Mathematical Section has been dealing with two main subjects, (1) the problems of subsoil flow, and (2) the problems of open flow... The works of the problems of open flow has had, as its object,

the introduction of some characteristics of silt into regime formula for open channels. An attempt has been made to deal with the mean diameter of the silt particles when considered for a mean temperature of 20 C.; An investigation that took a considerable time was the study [by the Statistical Section] of erosion data from the Ravi catchment. The examination indicates that disforestation had reached such a state before river discharge and rainfall records commenced that it is impossible to express any opinion as regards the effects of erosion in recent years; Soil deterioration has been studied by the Land Reclamation Section. Experiments have been designed and are in progress to test the possibility of preventing deterioration. Work has been carried out to determine methods that should be used for studying soil erosion."

Mathematical section report, pp. 25-61.

Statistical section report, pp. 63-135.

Hydraulics section report, pp. 137-189.

Land reclamation section report, pp. 191-217.

Reifenberg, A. The soils of Palestine. Studies in soil formation and land utilization in the Mediterranean. Translated by C.L. Whittles. 131pp., illus. London, Thomas Murby & co., 1938. 56.25 R27

Bibliographies at end of each chapter.

"For fifteen hundred years the land [of Palestine] has steadily deteriorated. The abandonment of terrace cultivation and the destruction of the trees has left the soil bare and unprotected from the forces of erosion. The ancient irrigation works have been destroyed and far and wide the once fertile countryside is covered by sand dunes. For centuries dung has been burned as a fuel, and thus an unmitigated policy of soil impoverishment has been pursued.

"Now, if the new Jewish immigration is to restore the land's fertility, it is obvious that the investigation of the properties of the soils of the country is a task of primary importance. On the other hand, the soil investigator must also strive to compare the soils of his country with those of other regions, for it is only by this method of treatment that profitable use can be made of knowledge gained elsewhere. In the following pages a description is given of soil formation in Palestine within the framework of the Mediterranean type of weathering, and at the same time an attempt is made to give a general survey of the soils of the country. The author is fully conscious that many years must still elapse before all the problems are completely solved, but he believes that he has been able to detect some mistakes, and these may serve as cautionary examples for new projects, both in Palestine and elsewhere." --Preface. p.v.

Rhodesia, Southern. Department of agriculture and lands. Report of the secretary... for the year 1937. 41pp. Salisbury, Printed for the government stationery office by the Rhodesian printing and publishing co., 1938. 24 R344 1937.

Soil conservation, pp. 7-8.

1,015 miles of contour ridges were built in 1937, giving protection to 23,375 acres. Since 1929 no less than 2,612 miles of contour ridging has been constructed. Soil conservation demonstrations were held at 17 centers.

Soil science society of America. Proceedings 1937. Volume II contains papers presented at meeting held in Chicago November 30 - December 4, 1937. 602pp., illus. [Ann Arbor, Mich., Edwards brothers 1938] 56.9 So3 v.2, 1937.

Partial contents: Importance of soil microscopy for soil erosion studies (abstract) by Walther Kubišna, p.1. - Soil structure and moisture movement, by H.J. Harper, pp.15-20. - Observations on moisture conditions in lysimeters, by O.R. Neal, L.A. Richards and M.B. Russell, pp.35-44. - The variability of the permeability "constant" at low hydraulic gradients during saturated water flow in soils, by G.B. Bodman, pp.45-53. - Further development on apparatus for field moisture studies, by L.A. Richards, M.B. Russell and O.R. Neal, pp.55-63. - The effect of lime and organic matter on the erodibility of Cecil clay, by T.C. Peele, pp.79-84. - Changes in the erodibility of soils brought about by the application of organic matter, by G.M. Browning, pp.85-96. - The relation of certain physical characteristics to the erodibility of soils, by T.C. Peele, pp.97-100. - Soil consistence and soil structure in relation to the other physical properties of the soil, by C.C. Nikiforoff, pp.401-409. - The sedimentation survey of the Ohio valley after the January-February 1937 flood, by M.H. Brown, pp.411-414. - Soil survey as a basis for land use study in a community, by W.W. Lewis, pp.423-425. - Factors which affect the development of prismatic structure in soils of the southern great plains, by H.J. Harper, pp.447-453. - Land utilization in relation to soil types and soil ratings by E.G. Fitzpatrick, pp.483-487. - The idea of the natural land type, by J.O. Veatch, pp.499-503. - The effect of the degree of slope and rainfall characteristics on runoff and soil erosion, by J.H. Neal, pp.525-532. - Rainfall characteristics of Missouri in relation to runoff and erosion, by L.D. Eaver, pp.533-536. - Reciprocal relationships of texture, structure and erosion on some residual soils, by R.W. Gerdell, pp.537-545. - Soil losses on fertility experiment plots, by G.W. Conrey and E.M. Burrage, pp.547-554. Design of the automatic recording in-place lysimeters near Coshocton, Ohio, by W.U. Garstka, pp.555-559. - The method of determination of degree of dispersion of the clay fraction of soils as used in investigation of abnormal characteristics of soils in region 8 of the Soil Conservation Service, by G.M. Volk, pp.561-565. - Grassland management for soil conservation, by A.T. Semple, pp.571-577. - A new method for measurement of erosion from experimental plots, by W.E. Davis, pp.579-583.

Taylor, N.H. Land deterioration in the heavier rainfall districts of New Zealand. New Zeal. Dept. Sci. and Indus. Research. Bull. 62. Pages 657-681, illus. Wellington, 1938. 330.9 N48B no.62

"References," p.681.

"Extracted from the New Zealand Journal of Science and Technology v.19, no.11, pp.657-81, 1938."

The five types of erosion predominating in New Zealand are wind, sheet, gully, tunnel and slip erosion. These types are described as well as proposed control methods.

Texas planning board. Development of Texas rivers. A water plan for Texas. 155pp., illus., processed. Austin, March 1938. 280.7 T31De

"The plan as herein presented has been incorporated into the 1937 report of the National Resources Committee to the President, concerning drainage basin problems of the United States."

Weaver, J.E. and Clements, F.E. Plant ecology. 2d ed. 601pp., illus. New York and London, McGraw-Hill book company, inc., 1938. 463.8 W37P 2d ed.

"Bibliography, pp. 539-582.

"The purpose of the revised edition is to furnish a comprehensive text-book in accord with present-day ecological progress and a guide to workers in the numerous related fields where an intimate knowledge of plant and plant environments, whether natural or modified by man, is fundamental to progress."

White, Trumbull. Puerto Rico and its people. 383pp., illus. New York, Frederick A. Stokes company, 1938. 125 W582

Background information for soil conservation work on the island.

Wyoming. Department of education. Division of vocational education.

A suggestive lesson plan book for vocational agriculture teachers.

101 numb. 1., illus., mimeogr. Cheyenne, September 1937. 56.7 W99

By Sam Hitchcock.

Lettered on cover: Vocational teachers plan book. Soil conservation.

"Prepared to help instructors in teaching Soil Conservation to their classes."

#### STATE EXPERIMENT STATION AND EXTENSION PUBLICATIONS

##### Indiana

Cole, R.O. Soil conservation in Indiana. Ind. Purdue Univ. Ext.

Bull. 228. 24pp., illus. Lafayette, June 1938. 275.29 In2E no. 228.

##### Kansas

Eier, H.F. and Stover, H.E. Terracing to control erosion. Kans. Agr.

Col. Ext. Bull. 70, rev. 44pp., illus. Manhattan, June 1938.

275.29 K13E no. 70 rev.

Kansas state board of agriculture. Soil erosion by wind in Kansas.

Kans. State Bd. Agr. Rpt. v. 56, no. 224-A. 86pp., illus. Topeka, 1938.

2K13Re v. 56, no. 224-A.

Contents: Soil blowing in Kansas and methods of control, by R.I.

Throckmorton and L.L. Compton, pp. 7-44; The Kansas soil drifting law, pp. 45-47; Surveys of soil blowing, by W.A. Atchison, pp. 50-86.

##### Kentucky

Nicholls, W.D., Bondurant, J.H. and Galloway, Z.L. Family incomes and

land utilization in Knox county. Ky. Agr. Exp. Sta. Bull. 375. 219pp.,

illus. Lexington, November 1937. 100 K41[b] no. 375.

### Minnesota

Neal, J.H. Relation of rainfall to soil erosion. Minn.Agr.Ext. Agr.Engin.News Letter 74. 1 p. May 15, 1938.

Results of an experiment conducted by the author in which two inches of rain were applied in one hour on an 8 per cent slope.

Roe, H.B. and Neal, J.H. Soil erosion control in farm operation. Minn.Agr.Ext.Spec.Bull.170 rev. 20pp., illus. [University Farm] September 1937. 275.29 M66S no.170 rev.

### Mississippi

Copeland, T.C. Terracing in Mississippi by the soil erosion index system. Miss.Agr.Col.Ext.Bull.34(2nd rev.) 20pp., illus. State College, October 1937. 275.29 M68 no.34, 2d.rev.

### Missouri

Hammar, C.H., Roth, W.J. and Johnson, O.R. Types of farming in Missouri. Mo.Agr.Exp.Sta.Research Bull.284. 100pp., illus. Columbia, May 1938. 100 M693[r]no.284.

Neal, J.H. The effect of the degree of slope and rainfall characteristics on runoff and soil erosion. Mo.Agr.Exp.Sta.Res.Bull.280. 47pp., illus. Columbia, April 1938. 100 M693[r]no.280  
"Bibliography," pp.46-47.

"It is the purpose of this paper to present the results of a study of a few factors affecting erosion which were obtained by setting up a miniature laboratory-controlled field on which the degree and length of slope, the rainfall intensity and duration, and the soil conditions were regulated or measured. The experiment was set up to study the effect of the degree of slope and rainfall characteristics on run-off and soil erosion from a cultivated field by varying one factor at a time and keeping all others as nearly constant as possible. Rainfall intensities of 0.90, 1.50, 2.00, 3.00, and 4.00 inches per hour were maintained within 0.20 inch of the required amount. The slope was varied usually by geometric progression between 0 and 16 per cent.

"Since artificial rain was used in conducting this experiment, it was important to compare its characteristics with natural rain, especially in regard to the size and velocities of their respective drops. In the first part of this paper, therefore, a discussion of the impact of falling drops of water is presented. The second part deals with runoff and soil losses under different conditions of rainfall, slope and soil."

For the experiment a Putnam silt loam surface from a timothy meadow was placed in a wooden soil tank. Artificial rain was applied by an overhead sprinkling system.

## Montana

Slagsvold, P.L. and Mathews, J.D. Agriculture on the Flathead project. Mont. Agr. Exp. Sta. Bull. 357. 23pp., illus. Bozeman, April 1938. 100 M76[b]no.357

"This is one of a series of publications dealing with the agricultural development and present status of representative Montana irrigation projects. With the many adjustments in agriculture which are now taking place in response to changed economic and physical conditions, there is a need for data upon which to base an orderly and progressive program. This is a preliminary report of the fundamental factors affecting the development and present status of agriculture on the Flathead project and facts are given which may aid in molding a sound agricultural policy for the area."

## Nebraska

Anderson, Arthur, Nelson, A.P., Hayes, F.A. and Wood, I.D. A proposed method for classifying and evaluating soils on the basis of productivity and use suitabilities. Nebr. Agr. Exp. Sta. Res. Bull. 98. 34pp., illus. Lincoln, May 1938. 100 N27[r]no.98

It is the object of this paper to present a method for classifying and evaluating the soils as mapped in regular soil surveys on the basis of land types. The proposed procedure involves a more detailed study of the influence which soils, erosion, and drainage have on specific crops and practices than is contained in the county soil survey reports. Johnson county, located in the center of the drift-hill area of southeastern Nebraska was selected to illustrate the procedure.

## Oklahoma

Holler, V.G. The chemical content of Oklahoma rain-fall. Okla. Agr. Ext. Sta. Tech. Bull. 1. 23pp., tables. Stillwater, May 1938. 100 Ok4[t]no.1  
"Bibliography." p.23.

## Pennsylvania

Pennsylvania agricultural experiment station. Department of agricultural economics. The economic implication of the crop and livestock adjustments in the Crooked Creek erosion control project, Indiana and Armstrong counties, Pennsylvania. 22 numb.1., mimeogr. [State College?] September 1937. 281.073 P38E

By David H. Walter.

In cooperation with United States Department of Agriculture, Soil Conservation Service and Bureau of Agricultural Economics.

## South Carolina

Peelo, T.C. and Wilson, J.K. Distribution of legume bacteria in the Piedmont soils of South Carolina. S.C. Agr. Exp. Sta. Bull. 314. 14pp., illus. Clemson, June 1938. 100 So8[b]no.314.

"Literature cited," pp.13-14.

Indicates results of an investigation started in an effort to

determine what effect, if any, the alteration of Piedmont soils by accelerated water erosion has had upon the numbers of legume bacteria normally supported by these soils.

Rochester, M.C. and Steanson, Oscar. Farm adjustments in Saluda county, South Carolina. S.C. Agr. Exp. Sta. Bull. 315. 80pp., illus. Clemson, June 1938. 100 So8[b]no.315

An analysis of agricultural and economic conditions in a county, which due to various circumstances suggested in the text, decreased 17.8 per cent in population in 10 years.

Needed adjustments are pointed out, including the desirability of soil conservation. Tables give suggested organization of farms on various types of land.

#### Utah

Utah agricultural experiment station. Division of publications. A bibliography of range management and related subjects in the state of Utah. Utah Agr. Exp. Sta. Mimeogr. Sheet 158. 23 numb. 1., mimeogr. [Logan] February 1938. 100 UtiMi no. 158

#### Virginia

Hill, H.H. The liberation of plant nutrients from the soil as affected by alfalfa. Va. Agr. Exp. Sta. Tech. Bull. 60. 19pp., illus. Blacksburg, August 1937. 100 V81S[t]no.60.

Tables indicate effect of green and mature alfalfa on moisture content, accumulation of nitrogen, pH values, amount of water leached from 2-foot lysimeters, amount of plant nutrients leached from 2-foot lysimeters.

Findings demonstrate that "by the use of a good cover crop erosion and the loss of available plant food are prevented".

### U.S. GOVERNMENT PUBLICATIONS

#### Department of Agriculture

Brown, I.C. and Byers, H.G. Chemical and physical properties of certain soils developed from granitic materials in New England and the Piedmont, and of their colloids. U.S. Dept. Agr. Tech. Bull. 609. 56p., illus. Washington, U.S. Govt. print. off., June 1938.

1 Ag84T no. 609

"Literature cited," pp. 54-56.

Craddock, G.W. Surface run-off and erosion on granitic mountain soils of Idaho as influenced by range cover, soil disturbance, slope, and precipitation intensity. U.S. Dept. Agr. Circ. 482. 24pp., illus. Washington, U.S. Govt. print. off., August 1938. 1 Ag84C no. 482

"Literature cited," pp. 20-21.

The specially designed rain-making apparatus which was employed in making the tests is described on pages 21-24.

Of the four range cover types studied, wheatgrass, downy chess,

lupine-needlegrass and annual wood, the first "is unquestionably superior for controlling run-off and erosion".

Soils taken for laboratory analysis before and after an artificial rainstorm indicated that "the finer particles were eroded more readily than were the sand and gravel, resulting in a coarser soil after the rain...The surface soil lost 6 percent of its silt, 7 percent of its clay, 29 percent of its organic matter and 20 percent of its nitrogen as a result of one storm. These significant soil changes...indicate the manner in which erosion robs the soil of its fertility even faster than the topsoil is removed."

Hollowell, E.A. Crimson clover. U.S. Dept. Agr. Leaflet 160.  
8pp., illus. [Washington, U.S. Govt. print. off., June 1938]  
1 Ag84L no. 160

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Studies of the use and conservation of water under dry-land production of spring wheat and corn, at the Northern Great Plains Field Station, under continuous cropping on land plowed in the spring and land plowed in the fall, under alternate cropping, under a system of cropping to wheat after 3 years of continuous fallow, and with two soils of widely different texture and water-holding capacities.

The studies indicate that "surface condition plays an important part in the conservation or use of water. Stubble left on the ground throughout the dormant season is a positive help in checking surface losses. Stubble reduces run-off and surface evaporation and holds snow. The moisture saving which it effects overshadows the loss of water that may result from weed growth after harvest."

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Pasted to back cover is a map, in color, entitled "Soil Associations of the United States".

"How to use the land better than we have is at once a national problem, a local problem, and an individual problem. It involves at least five different elements. The Yearbook is divided into five parts corresponding to these five divisions of subject matter.

"Part 1, The Nation and the Soil, deals with the problems and causes of soil misuse from the economic and social standpoint, and the possible remedies from the same standpoint.

"Part 2, The Farmer and the Soil, deals with a wide range of soil-management practices that may be applied by individual farmers.

"Part 3, Soil and Plant Relationships, deals with the soil requirements of plants and some relations between soil composition and plant composition and functioning.

"Part 4, Fundamentals of Soil Science, discusses the physical, chemical and biological nature of the soil, which furnishes the scientific background for dealing with practical problems.

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By R. Lockwood Forsyth under the direction of C. B. Ahlson.

A report is hereby presented of the practice of portable undertree sprinkler irrigation, no tillage, and permanent cover crops in the citrus and avocado groves on the Griswold properties in La Habra Heights, near Whittier, California.

"Mr. Harland Griswold, the manager and owner of part of the groves, expects to demonstrate that such a combination is an improved practice for economic and effective soil and water conservation and will contribute to the scientific and profitable management of his groves.

"The purpose of the report is to review the details regarding his methods in this practice, and to point out the advantages and benefits to be derived as enumerated by Mr. Griswold."

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#### CORRECTION

On p. 67 of the May/June issue of Soil Conservation Literature, under the heading 'Green Manuring', the title of the periodical was incorrectly given. The entry should read:

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